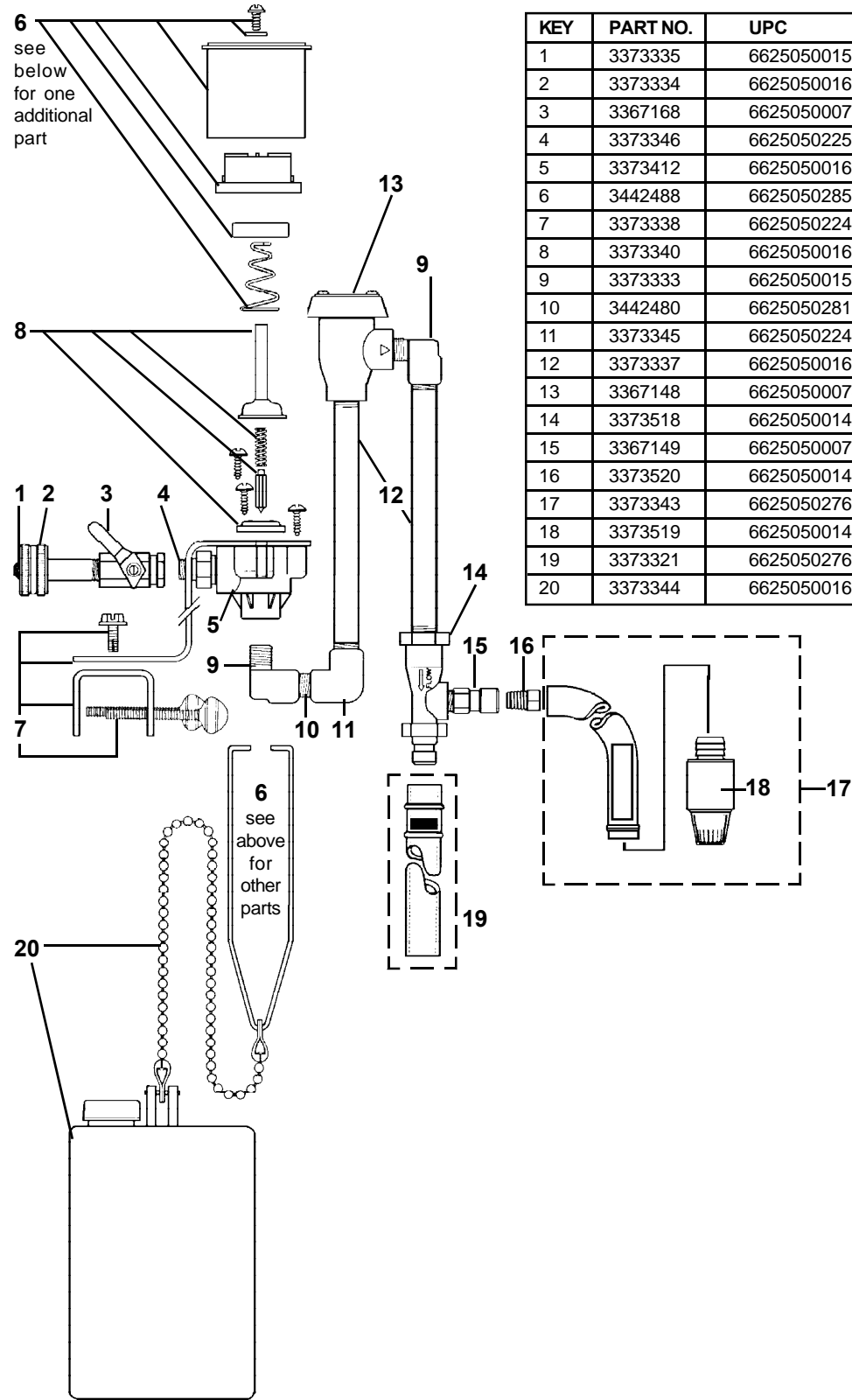


FIGURE 2
CIMCOOL Mix Master Automatic Proportioner (447) Parts, Exploded View

KEY	PART NO.	UPC	DESCRIPTION
1	3373335	66250500151	Strainer Washer (238100)
2	3373334	66250500160	Hose swivel (506500)
3	3367168	66250500078	Ball valve (502000)
4	3373346	66250502250	Nipple (360900)
5	3373412	66250500167	Water Valve Body (520000)
6	3442488	66250502858	Magnet Operator Parts Kit (10080500)
7	3373338	66250502247	Mounting Bracket Kit (5030-K)
8	3373340	66250500163	Valve Parts Kit (6655-K)
9	3373333	66250500159	Street Elbow (505600)
10	3442480	66250502817	Close nipple (519000)
11	3373345	66250502249	Elbow (506000)
12	3373337	66250500162	Nipple (505900)
13	3367148	66250500074	Vacuum Breaker (506300)
14	3373518	66250500142	Venturi (Eductor Body) Assy. (441100-CM)
15	3367149	66250500075	Orifice Retainer (441101)
16	3373520	66250500144	Metering Tip Kit (690015)
17	3373343	66250502768	Siphon Hose/Foot Valve Assy. (10031102)
18	3373519	66250500143	Foot Valve Assy (10076305)
19	3373321	66250502769	Discharge Hose Assy. (5057-A)
20	3373344	66250500165	Float & Chain Assy. (5043-A)



CIMCOOL® MIX MASTER AUTOMATIC PROPORTIONER

Part Number 447
 UPC 65250502513

OPERATING INSTRUCTIONS/INSTALLATION GUIDE

DESCRIPTION

The CIMCOOL Mix Master Automatic Proportioner is a simple, economical, and accurate method to mix CIMCOOL metalworking fluid concentrate with water. The proportioner automatically mixes CIMCOOL metalworking fluid concentrate with water and fills a reservoir to a pre-determined level. The most important requirement in the use of metalworking fluids is maintaining the proper mix ratio. This is easily controlled with the use of the CIMCOOL Automatic Mix Master Proportioner.

The CIMCOOL Mix Master Automatic Proportioner is mounted vertically on a fluid reservoir wall. The siphon hose is placed in a 55-gallon (208 L) concentrate drum. A water line is connected to the proportioner. When the ball valve is turned to the "on" position (water line open), the

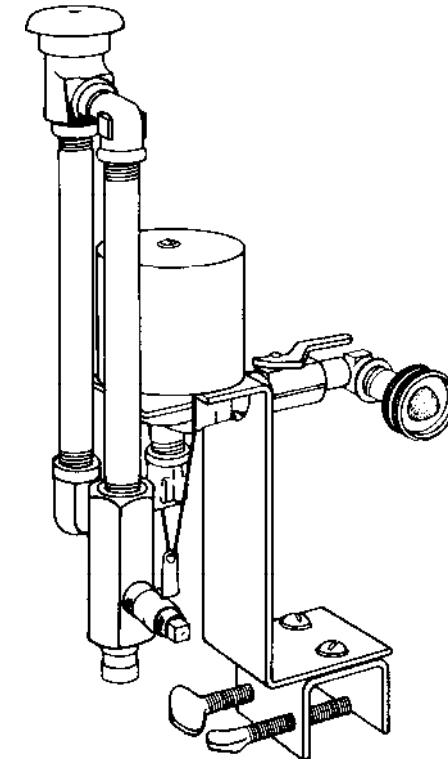
metalworking fluid concentrate is siphoned from the 55-gallon (208 L) drum, mixed with water, and discharged into the reservoir at approximately 3 to 4* gallons per minute until the reservoir is filled to the pre-determined level at which time the proportioner automatically shuts off.

The two main requirements for successful operation of the equipment are a minimum water pressure of 15 psig (101 KPa) (flow pressure) and selection of the proper metering tip.

The unit features a vacuum breaker to prevent backflow of fluid concentrate to the tap water line (in compliance with OSHA regulation 29 CFR section 1910.141 (b)(iii)).

The unit also features a foot valve/strainer to prevent backflow of concentrate into the drum.

* 3.7 gpm at 40 psig flow pressure (14 LPM at 275 KPa)



WARNING:

Do not use the proportioner where water pressure exceeds 90 psig (620 KPa). Do not use the proportioner with a water supply temperature above 170°F (77°C). Use caution when handling chemicals; wear protective eyewear and gloves to prevent contact with the chemicals. Failure to follow these instructions may result in personal injury.

For more specific information on the safety of the various CIMCOOL metalworking fluids, obtain the Product Information Folder(s) and follow the recommendations provided.

INSTALLATION

MOUNTING

The CIMCOOL Mix Master Automatic Proportioner must be mounted in a vertical position — not tilted in any direction as noted by visual inspection, and no higher than five feet (1.5 m) above the concentrate drum. The proportioner must be positioned so that the venturi body is above the fluid concentrate drum.

Drum Style — Clamp the proportioner to the edge of the container using the U clamp (G) and thumb screws provided (Figure 1).

Flanged Reservoir — Remove the U clamp from the proportioner assembly. Reinstall the U clamp and mount the proportioner as shown in Figure 1, inset 1.

Assembly — Refer to the illustrations and lettered reference points in Figure 1.

A. **Water Supply:** The minimum flow pressure of 15 psig (101 KPa) is required. If the water pressure varies, install a pressure regulator to minimize changes. The proportioner requires a ½ inch (1.3 cm) I.D. water line (A) with a ¾ inch (1.9 cm) female garden hose fitting.

B. **Discharge Hose:** The discharge hose (B) must be installed for the proportioner to properly mix the metalworking fluids. Attach the flooding ring end of the discharge hose to the venturi body by using slip joint pliers to slide the clamp over the venturi mixer outlet groove.

The discharge hose is placed in the reservoir at a point below the mix level where the flow activates the magnetic valve to refill the reservoir. This will prevent foaming.

Extending the discharge hose length will affect the concentration ratio due to back pressure. If a longer hose is required, it will be necessary to determine the correct metering tip by trial and error.

C. **Metering Tip:** Select the proper metering tip (C) (See Table 1). Thread the metering tip into the orifice retainer by hand (see detail, Key 15, in Figure 2). One set (15

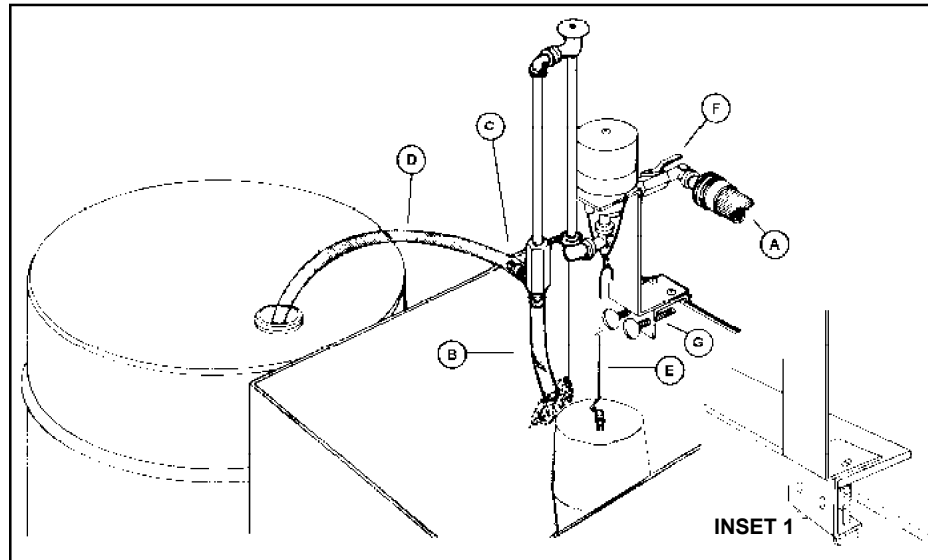
tips) of color-coded plastic metering tips is enclosed with each unit. Please refer to Table 1 for the tip identification chart.

D. **Siphon Hose:** Insert the weighted foot valve into the concentrate drum. Attach the opposite end of the siphon hose (D) to the orifice retainer.

E. **Level Adjustment:** The adjustable chain length (E) permits use of the CIMCOOL Mix Master Automatic Proportioner on shallow or deep reservoirs. Position the float at the desired level.

F. **On-Off Valve:** The manual on-off valve (F) is used to turn off the CIMCOOL Mix Master Automatic Proportioner when not in use. Turn off when changing the metering tip or concentrate drum, and when draining the reservoir for cleaning or maintenance.

FIGURE 1



MIX RATIOS

The CIMCOOL Mix Master Automatic Proportioner is a venturi type proportioner which depends on water pressure and a metering tip to obtain a particular mix ratio.

Refer to your CIMCOOL Product Information Folder for selecting the proper metering tip to obtain the recommended metalworking fluid concentration. The mix ratios were obtained at a flow pressure of 40 psig (275 KPa). Checking the actual mix ratio or concentration obtained at startup with a refractometer or titration kit is recommended.

Variation in fluid temperatures and water pressures will have a slight affect on the mix ratio. These variations can be minimized by

1. Installing a pressure regulator on the water line (remembering that the minimum water pressure is 15 psig (101 KPa) to operate the proportioner).
2. Using the fluid concentrate at room temperature

Please be aware that changing the discharge hose length will affect the mix ratio. The standard Mix Master Automatic Proportioner has approximately two feet (.6 m) of discharge hose. The discharge hose must have an open or gravity discharge and the flooding ring must be installed in the discharge hose for proper operation of the proportioner.

As the fluid level rises in the reservoir, the maximum fill level can be set by adjusting the float chain length (E). When the float rises, the magnetic valve will close, stopping the water flow to the proportioner. When the reservoir level is lowered, through withdrawal of premixed fluid, the float level will fall, thereby opening the magnetic valve and sending water to the proportioner. In this manner the automatic proportioner will continue to maintain a reservoir full of premixed fluid, where the fluid level will vary approximately two inches (5.0 cm) in the tank.

TABLE 1: TIP IDENTIFICATION CHART

PART NUMBER	COLOR	DIAMETER	DRILL SIZE
690043	Gray	.128	30
690042	Black	.098	40
690041	Light Brown	.070	50
690040	Red	.052	55
690049	White	.043	57
690039	Blue	.040	60
690038	Medium Brown	.035	65
690037	Green	.028	70
690048	Orange	.025	72
690036	Dark Brown	.023	74
690035	Yellow	.020	76
690046	Purple	.014	79
690047	Pink	.010	87
690044	Clear	Your Choice	(No Hole)

TROUBLESHOOTING

PROBLEM	CORRECTIVE ACTION										
	Check water pressure (1)	Check metering tip (Table 1)	Check foot valve/strainer	Check discharge hose/flooding ring	Check fluid temperature	Check venturi/metering tip for residue or scale	Inspect/tighten water hose fitting and on/off ball valve	Clean/replace gasket on vacuum breaker	Clean with warm cleaning fluid (consider use of deionized water)	Clean inlet strainer	Check manual operation of solenoid
1. Unable to obtain proper mix ratio	X	X	X	X	X	X					
2. Mix ratio varies	X				X						
3. Proportioner leaks							X	X			
4. Water enters concentrate drum			X				X	X			
5. Scale forms on venturi or metering tip									X		
6. Unable to obtain water flow										X	
7. Float does not activate solenoid											X

- (1) Install pressure regulator to minimize changes in tap water pressure. Minimum flow pressure to be 15 psig (101 KPa).

MAINTENANCE

The CIMCOOL Mix Master Automatic Proportioner features simple operation and low maintenance. With few moving parts there is little to wear out. However, it is recommended that the venturi assembly and metering tip area are inspected periodically to insure that no residue is forming on the unit. If a residue or scale is forming (most likely due to hard water reacting with the product), cleaning with warm water and a cleaning fluid designed to remove scale is recommended. As the tubing shows signs of deterioration, replacement is recommended.

SALES

The CIMCOOL Mix Master Automatic Proportioner part number is 447. Use this part number when placing an order with your Cincinnati Milacron Distributor

SERVICE

For additional information contact: your Milacron Consumable Products Division Industrial Distributor or Milacron Consumable Products Division Customer Service: 1-800-319-2275 or 1-800-262-2271

SPARE PARTS

Spare parts are available from your Milacron Consumable Products Division Industrial Distributor. (See Figure 2).

WARRANTY

Milacron provides a limited warranty of 60 days from the date of sale, where we will replace at no charge any defective part on the proportioner.